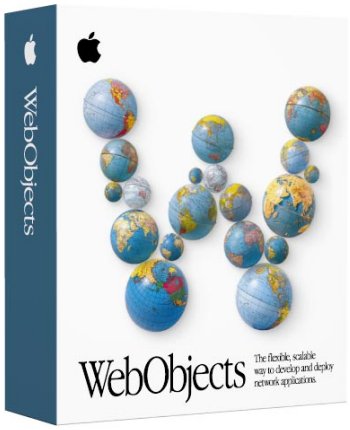
WebObjects 4.5

The flexible, scalable way to develop and deploy high-performance network applications.



Features

Flexible and scalable application server

- Connect applications to any HTTP server and any data source
- Load-balance across any number of systems
- Manage your business objects
- Handle interaction with any thin clients: web browsers or Java applets
- Maintain user profiles with session management capabilities

Easy-to-use development tools

- Integrated development environment
- Visual designers (both HTML and Java)
- Object modeler
- Data integration wizards for HTML applications and Java clients

Open and extensible frameworks

- Application components for managing tasks like email and file uploading
- Presentation components for generating user interfaces on demand
- Data components for caching objects and database connections
- Foundation components for handling Unicode strings and dates beyond the year 2000
- Full XML support for interoperability with other XML-based applications
- LDAP support for access to standard directory services

Powerful deployment tools

- Application monitor
- Testing manager
- Statistics manager
- Dynamic performance profiling

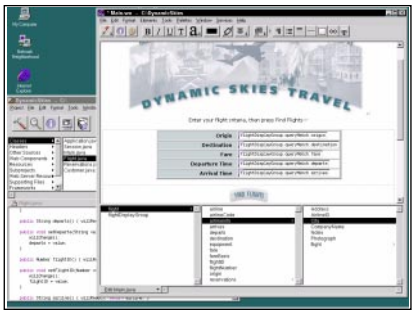
The world's leading application server has just gotten smarter, easier, and even more interoperable. Renowned flexibility and scalability have already made WebObjects the platform of choice for developing and deploying dynamic network applications, whether you're building Internet, intranet, extranet, or e-commerce solutions. Now WebObjects 4.5 builds on the performance and productivity enhancements of version 4 with even more tools, technologies, and capabilities to make your websites the envy of your competitors.

Smarter. Version 4.5 extends the technology leadership of WebObjects by giving you more control over development and deployment. WebObjects applications can now tell you how to optimize them for even higher performance. The database layer automatically manages failures and reconnects. The Open Source web server adaptors provided with version 4.5 even know how to talk with older versions of WebObjects.

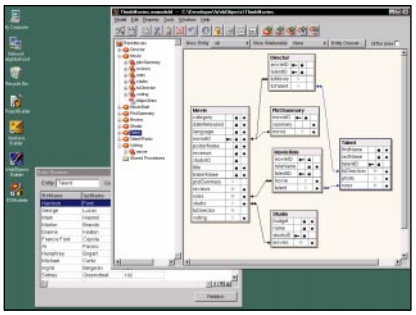
Easier. With WebObjects 4.5, Apple has done the seemingly impossible by making the world's easiest development platform even easier to use. Now you can generate rich Java client interfaces as easily as you've built HTML clients with the code-free "Direct to Web" feature. Our new "Direct to Java Client" technology uses wizards, preconfigured templates, and dynamically generated user interfaces to make client/server Java database development as easy as the push of a button. And the completely redesigned WebObjects Builder further streamlines the HTML layout process to ensure that the HTML you get is the HTML you want.

Even more interoperable. WebObjects has always led the way in adopting important Internet standards, and WebObjects 4.5 builds on that rich tradition. Version 4.5 includes full XML support based on IBM's leading Java XML parser. It also extends our award-winning Java technology to include full support for HP-UX 11. We've even included an LDAP adaptor so that your web applications can talk to directories as easily as they talk to Oracle, PeopleSoft, and SAP databases.

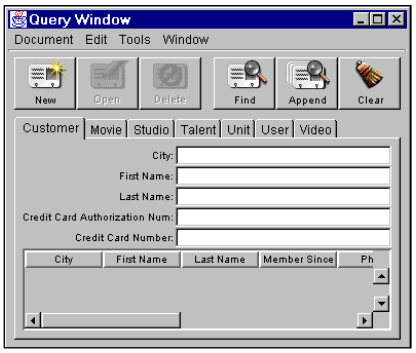
WebObjects: Find out for yourself why enterprises in all industries have made it the world's leading application server.



The heart of the streamlined development approach of WebObjects, Project Builder automatically coordinates every aspect of your project—business objects, source code, visual layouts, HTML, and images. Edit source code, open other tools, and launch and debug applications.

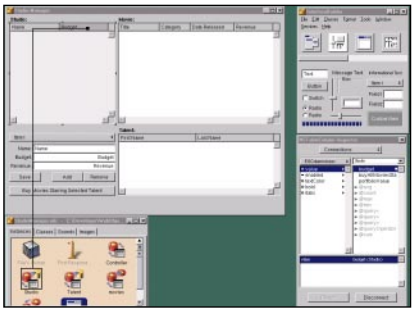


Enterprise Objects Modeler helps developers to quickly create entity-relationship diagrams and object models for data sources in a point-and-click visual environment, and even to incorporate multiple data sources into a given data access object.

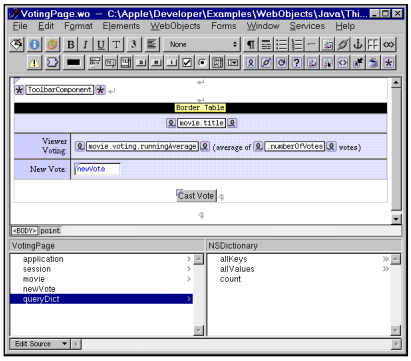


Direct to Java Client allows developers to create client/server Java applications in a matter of minutes. Now it's as easy to build rich graphical user interfaces for databases as Direct to Web made it to build HTML interfaces.

Features	Benefits
Application server fundamentals	
Scalability	• Allows developers to create applications for millions of users through its load-balancing and multithreading capabilities • Enables administrators to add servers, processors, application instances, and more threads without requiring developers to change their code
Reliability	• Provides automatic failover and recovery systems • Offers multiapplication server support • Provides automatic application restart
Standards support	• Integrates with common Internet protocols • Supports e-commerce standards such as OpenMarket and CyberCash • Connects to network resources via CORBA/IIOP, DCOM/COM, HTTP/S-HTTP, SSL, and other secure APIs
Request-handling services	• Provides a consistent interface for WebObjects applications to handle network requests from users via simple URL requests, form submissions, or Java applets requesting or sending structured data • Works directly with scaling and connection services to allow for millions of users to interact with your applications
Session management support	• Supplies an infrastructure to handle common network application tasks • Supports parsing form input from URLs and HTTP headers • Automatically creates and identifies sessions • Automatically manages failures and reconnects • Supports state storage, including encrypted URLs, hidden fields, cookies, static bookmarks, and RAM
Database connectivity	• Provides the most flexible method of mapping business objects to data sources • Includes multitier frameworks that give access to Oracle, Sybase, Informix, or any ODBC-supported database • Provides access to custom data sources such as mainframes, SAP, PeopleSoft, and LDAP directories • Gives business objects access to multiple data sources simultaneously
Fast, flexible tools	
Direct to Java Client	• Creates robust Java client user interfaces automatically, without coding
Direct to Web	• Provides a turnkey application that is generated at runtime from object-database models • Enables modification of the look and function of the application while it's running with the Web Assistant • Allows extension of an application by choosing the part to be changed and creating a component from it
Development tool suite	• Includes four visual development tools: —Project Builder for code editing, compiling, and visual debugging of Java and C-based languages —Enterprise Objects Modeler for modeling the relationship between business objects in the application and data source schema with its new graphical query builder —WebObjects Builder for designing HTML interfaces (now with a new and improved user interface to shorten development time) —Interface Builder for creating the layout of applets with JavaBeans and Swing UI elements



Interface Builder is the tool of choice for creating highly interactive Java client interfaces. You can drag Swing and JavaBeans components directly into your application, and then connect them to your business objects to create a fully functional, scalable Java application—no code required.



The totally redesigned WebObjects Builder makes it even more simple and convenient to design dynamic HTML interfaces for your web applications.

Features	Benefits
Fast, flexible tools (continued)	
Versatile language support	• Allows development of applications in Java, Objective-C, or WebScript • Integrates with industry-standard development environments that support Sun's JDK 1.1.6 and the ANSI C, C++, and Objective-C compiler and debugger
Deployment tool suite	• WebObjects Monitor tool for managing and maintaining application servers • Playback Manager for recording sessions and playing them back across a network of client machines • Performance statistics reporting tools with dynamically generated graphs • Application profiler that highlights ways in which you can tune WebObjects applications for better performance
Open, extensible architecture	
Stratified application architecture	• Separates applications into multiple tiers: the client-based graphical presentation layer, the business logic layers, and the data access layer • Allows sharing of a piece of application logic or data with other existing applications to take advantage of enterprisewide application servers while continuing to make use of the existing business infrastructure
Reusable components	• Dramatically shortens the development process by allowing the reuse of elements such as log-in panels, report layouts, file uploading, and other recurring functional elements • Enables development of reusable components, or integrates components available from Apple and others
Browser and client technology independent	• Works with any standard HTML browser or Java-enabled clients • Interfaces with specific client-side technologies including QuickTime, AppleScript, JavaScript, and JavaBeans • Provides plug-ins to work with any web server, whether it uses CGI, ISAPI, NSAPI, WAI, or Apache • Provides source code allowing the application to interface with any operating system platform
Full XML support	• Makes it easy to build WebObjects applications that interoperate smoothly with other XML-based applications • Uses the industry-standard IBM XML parser • Enhances flexibility and portability by using XML for internal communications
Versatile new deployment environment	• Simplifies application deployment and management • Allows you to run WebObjects 3.5, 4.0, and 4.5 applications against a single web server adaptor

Who Should Buy WebObjects?

- Corporate developers who need to develop and maintain high-performance, cross-platform network applications that are scalable to meet the needs of a large user base
- Software integrators who want an easy way to extend their technology to the web and through Java clients
- Software developers who want to create solutions for the up-and-coming application server market
- Educational institutions that want a platform for teaching students how to develop object-oriented and network-based applications

Product Features

Development tools

- Project Builder
  - Manages the edit, compile, and debug process
  - Provides project indexing
  - Builds Java, ANSI C, C++, and Objective-C projects
- Enterprise Objects Modeler
  - Provides a graphical environment for development of business objects
  - Graphically builds queries without writing or maintaining code
  - Easily manages databases and their schema
- WebObjects Builder
  - Gives drag-and-drop control over HTML layout
  - Graphically manages tables, graphics, and frames
  - Connects HTML elements to business objects
  - Includes new features (hints, context-sensitive menus, automatic verification, and auto-fill) that help developers learn WebObjects faster than ever
- Interface Builder
  - Provides drag-and-drop control over Java client applets
  - Supports the Swing UI set
  - Connects visual JavaBeans with business objects
- Data integration wizards
  - Direct to Java Client for code-free creation of feature-rich Java client UIs
  - Direct to Web for code-free creation of advanced HTML applications
- IBM XML parser
  - Enables developers to create or share data with XML-based applications easily

Deployment tools

- Monitor and Statistics
  - Create and manage the configurations of application servers
  - Start, stop, and restart individual or groups of applications
  - View and tune application performance dynamically
  - View statistics of application performance
  - Access from any web browser
- Record and Playback Manager
  - Record web sessions and store for testing purposes
  - Schedule single or groups of playbacks for testing across many clients
  - View graphical display of results
  - Access from any web browser

Data sources

- Included data source adaptors
  - Oracle
  - Sybase
  - Informix
  - ODBC
  - LDAP
- Supported third-party tools
  - PeopleSoft and SAP
  - Mainframe applications

System Requirements

Supported operating systems for development tools

- Mac OS X Server
- Windows NT 4.0

Supported operating systems for deployment

- Mac OS X Server
- Windows NT 4.0
- Solaris 2.6 and 2.7
- HP-UX 11

Supported HTTP servers

- Any HTTP server with a CGI, ISAPI, NSAPI, Apache, or WAI interface

Supported databases

- Oracle, Sybase, Informix, and ODBC (Database support varies for each platform. Mainframe host application and database support is available from third-party providers.)

For More Information

For technical or sales information, call 800-879-6398 or visit www.apple.com/webobjects.

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